April 23, 1935. H. WOLFF 1,998,857

ILLUMINATED SIGN FOR DAY AND NIGHT DISPLAY

Filed July 24, 1933

Fig. 1.

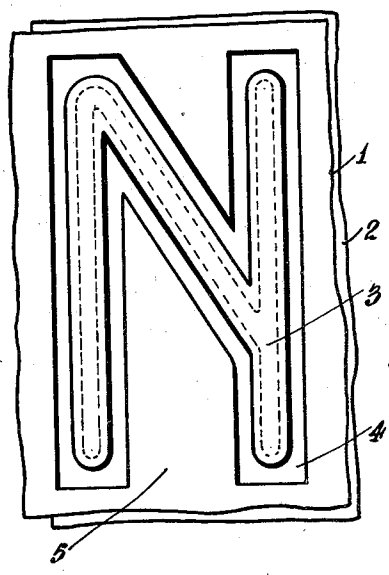


Fig. 2.

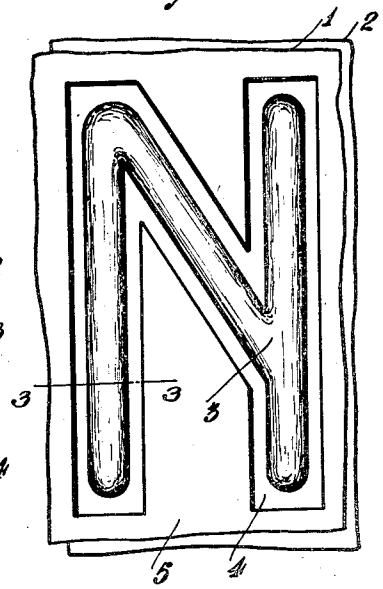


Fig. 3.

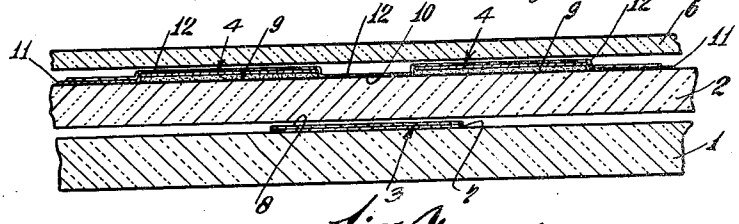


Fig. 4.

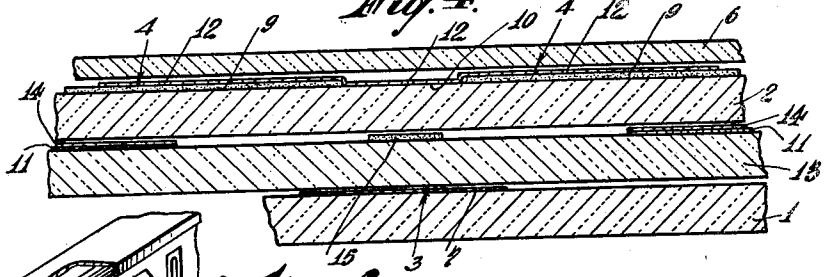
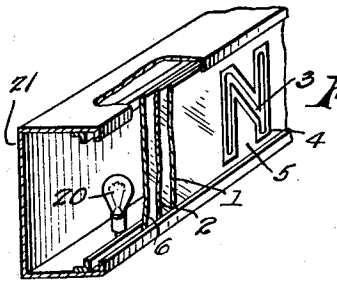


Fig. 5.



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UNITED STATES PATENT OFFICE

1,998,857

ILLUMINATED SIGN FOR DAY AND NIGHT DISPLAY

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In the Netherlands March 27, 1933

3 Claims. (Cl. 40—133)

This invention relates to improvements in signs for day and night display and has for its object to provide a device of this character which, when illuminated at night by an incandescent or other type of lamp, presents the attractive appearance of a luminous neon tube.

A further object of the invention is the provision of a sign having such structural characteristics that the letters or other figures thereon are clearly visible in the daylight.

A further object of the invention is the provision of a sign of this character which is of simple and inexpensive construction.

Further features and advantages of the invention will become clear from the following description and accompanying drawing in which

Fig. 1 illustrates a transparent sign according to the invention when being illuminated by direct light.

Fig. 2 illustrates the same sign illuminated by transmitted light with the aid of a source of light arranged behind it.

Fig. 3 is a view in section taken on the line 3—3 of Fig. 2 on a larger scale.

Fig. 4 is a view in section corresponding with that of Fig. 3 of a modification of the invention.

Fig. 5 is a fragmentary perspective view of the improved sign positioned in a casing.

By way of example Figures 1 and 2 illustrate an N. The transparent sign comprises two glass plates 1 and 2. The sign figure designated generally at 3 is visible in the desired colour and a similar mark 4, preferably gold-coloured, serves as a back ground. Fig. 1 shows how the letter is visible by daylight and Fig. 2 how it is visible by night or when illuminated from a light source 20. According to Fig. 1 the letter N looks like an ordinary flat letter whereas Figure 2 shows that the letter when illuminated by the light source becomes visible as a corporeal mark, having height, width and thickness, and apparently standing out from the back ground. The back plate 2 may be covered by a third glass plate 6 (Fig. 3) for protecting the coats of paint.

In Fig. 3 one of the legs of the letter N is illustrated on a much larger scale and in section. On the back of plate 1 the sign figure 3 is painted in the desired colour in a thin translucent coating 7 and this figure is covered by a white, translucent and reflecting coating 8.

The back of the second plate 2 is covered by an opaque gold coating 9 having the shape of the figure on the plate 1. A portion 10, however, having a smaller width than the coating of paint 7 and preferably half the width of the latter is not covered. The back of the gold coating 9 and the remaining portions of the back of plate 2, except for portion 10, are now painted with a coating of opaque black paint 11. Thereafter the entire back is covered by a translucent gray coating 12 which passes a diffused light through the portions 10. On the back of plate 2 the protecting plate 6 of ordinary glass is arranged in such a manner that all coatings of paint are enclosed and cannot be damaged by dust or moisture.

When light is thrown through the sign a beam of diffused light passes through the coating 12 and the portion 10 and a portion of this diffused light passes through the medial portions of the coatings 8 and 7 thereby illuminating the sign figure. Another portion of the light is reflected rearwardly by the coating 8 upon the gold coating 9. The latter reflects the light along the edges of the coatings 7 and 8. The width of the beam of light passing through the portion 10 being smaller than that of the coating 7 and being preferably equal to half the said width, the central portion of the last mentioned coating is illuminated to a larger extent than the marginal portions thereof so that in the said portions a shading will be effected which gives the letter the appearance of a round form so that it seems that it lies like an object on the black background 11. The light reflected by the gold coating 9 increases the said effect considerably.

Since there is between the coatings 7 and 11 a certain distance which is almost equal to the thickness of the glass plate it appears to the observer that the sign figure stands out in the space like a luminous tube. It is characteristic of the sign according to the invention that when the light passes through it, the background becomes entirely invisible so that by night the casing or the like in which the transparent sign is used is visible.

It is possible for the reproduction of a letter in white light, to employ a third plate arranged between the plates 1 and 2 (Figure 4). On this third plate the black background 11 is arranged which for a better reflection is covered by a coating 14 of a light green colour. The other paint coatings on the plates 1 and 2 are arranged in the same manner as described with reference to Figure 3. If desired the third plate 13 may be provided behind the centre of the sign figure with a narrow coating 15 of yellow, which passes the light and reflects it at the same time. The breadth of this coating 15 should be smaller than that of the portion 10.

The transparent sign according to the in-

vention may be mounted in a casing 21 of any construction in which the lamp 20 is located and in practice it has been found that only one or a few incandescent lamps 20 of a normal voltage are required for an effective illumination.

I claim:

1. An illuminated sign for day and night display comprising a sign figure of translucent material, an opaque element having a translucent area conforming in shape to the shape of the sign figure, arranged at the rear thereof and of less width than said figure, and a source of light arranged behind the opaque element, the narrow translucent area confining the passage of the light from said source to the medial portion of said figure, a partially reflecting surface behind the sign figure and a reflecting surface in front of the opaque element outlining the translucent area for reflecting light received from the partially reflecting surface toward the marginal areas of the sign figure.

2. An illuminated sign comprising a source of light three plates of glass disposed in front of the source of light; the front plate having on its rear face first a layer of translucent material and secondly a layer of partially reflecting and translucent material superimposed on the first layer, the two layers constituting the sign figure; the middle plate having on its rear face a layer of reflecting material outlining the translucent area and conforming in shape to the shape of the sign figure, secondly a layer of opaque material outlining the reflecting material and thirdly a coat of diffusing material completely covering the rear face; and the back plate protecting the first two plates.

3. An illuminated sign comprising a source of light four plates of glass disposed in front of the source of light; the front plate having on its rear face a layer of translucent material constituting the sign figure to be reproduced; the second plate having on its rear face first a layer of opaque material outlining an area similar to but larger than the sign figure, secondly a layer of reflecting material superimposed on the first layer and also on its rear face a layer of partially reflecting and translucent material conforming to the shape of but smaller than the sign figure disposed substantially behind the layer of translucent material on the rear of the front plate; the third plate having on its rear face a layer of reflecting material outlining a figure similar to but smaller than the sign figure on the first plate and larger than the layer of partially reflecting and translucent material on the second plate and a coat of diffusing material completely covering the rear face and the back plate protecting the other three plates.

HENDRIK WOLFF.